



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/820,584	04/08/2004	Michele A. Waldner	59401US002 (1004-098US01)	8150
32692	7590	12/12/2005	EXAMINER	
3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427			PHAM, TOAN NGOC	
			ART UNIT	PAPER NUMBER
			2632	

DATE MAILED: 12/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/820,584

Applicant(s)

WALDNER ET AL.

Examiner

Toan N. Pham

Art Unit

2632

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6/7/04; 7/7/05, 8/5/05
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-8, 12, 13, 15-21, 23, 25-32 and 39 are rejected under 35 U.S.C. 102(e) as being anticipated by Ikefuji et al. (Ikefuji) (US 6,624,743).

Regarding claim 1: Ikefuji discloses an RFID tag comprising: a main antenna (11) tuned to a first resonant frequency and switching circuitry (4, 5) that dynamically changes the resonant frequency of the main antenna (abstract; Fig. 3).

Regarding claim 2: Ikefuji discloses a capacitive element (C1-Cn); wherein the switching circuitry selectively electrically couples the capacitive element to the main antenna to change the resonant frequency of the main antenna (Fig. 3).

Regarding claim 3: Ikefuji discloses the switching circuitry couples the capacitive element in parallel with the main antenna to reduce the resonant frequency of the main antenna (Fig. 3).

Regarding claim 4: Ikefuji discloses the capacitive element comprises one of a capacitor and a transistor (Fig. 3).

Regarding claim 5: Ikefuji discloses an inductive element, wherein the switching circuitry selectively electrically couples the inductive element to the main antenna to dynamically change the resonant frequency of the main antenna (col. 8, lines 62-67).

Regarding claim 6: Ikefuji discloses a first conductive trace of a first length and a second conductive trace of a second length, wherein the first length is greater than the second length, and further wherein the switching circuitry selectively couples the first conductive trace or the second conductive trace to the main antenna to change the resonant frequency of the main antenna (col. 5, lines 49-62).

Regarding claim 7: Ikefuji discloses the switching circuitry comprises a microelectromechanical system (MEMS) switch that selects different electrical elements to change the resonant frequency (Fig. 3).

Regarding claim 8: Ikefuji discloses the switching circuitry comprises a capacitive switch that changes the resonant frequency of the main antenna based upon a stores charge (col. 5, lines 49-62; col. 8, lines 56-61).

Regarding claim 12: Ikefuji discloses a sensing antenna tuned to a second resonant frequency, wherein the switching circuitry changes the resonant frequency of

the main antenna based on an amount of current induced within the sensing antenna (col. 6, lines 8-28).

Regarding claim 13: Ikefuji discloses the main antenna and the sensing antenna are coplanar (Fig. 2, 3).

Regarding claim 15: Ikefuji discloses the switching circuitry automatically changes the resonant frequency of the main antenna upon application or removal of a radio frequency field to the RFID tag (col. 6, lines 29-67).

Regarding claim 16: Ikefuji discloses an RFD integrated circuit electrically coupled to the main antenna that stores information of an associated article and communicates the information to an RFID reader via the main antenna (col. 8, lines 28-54).

Regarding claim 17: See claim 1 above.

Regarding claim 18: See claim 2 above.

Regarding claim 19: See claim 4 above.

Regarding claim 20: See claim 5 above.

Regarding claim 21: See claim 6 above.

Regarding claim 22: See claim 9 above.

Regarding claim 25: See claim 15 above.

Regarding claim 26: See claims 1 and 16 above.

Regarding claim 27: See claim 2 above.

Regarding claim 28: See claim 3 above.

Regarding claim 29: See claim 4 above.

Regarding claim 30: See claim 5 above.

Regarding claim 31: See claim 6 above.

Regarding claim 32: See claim 7 above.

Regarding claim 39: See claim 15 above.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9-11, 14, 22, 24 and 33-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikefuji et al. (US 6,624,743).

Regarding claim 9: Ikefuji does not disclose sensing the electromagnetic coupling with a neighboring tag; however, Ikefuji discloses the automatic switching of the resonant frequency by selectively increase or decrease the resonant frequency (col. 5, lines 49-62; col. 6, lines 29-67). Thus, it is obvious that the resonant frequency is changing its frequency when there is a need to provide a more efficient communication.

Regarding claim 10: Ikefuji discloses the switching circuitry comprises a transistor that turns on when a current in the sensing circuit exceeds a threshold value (Fig. 3).

Regarding claim 11: Ikefuji discloses the switching circuitry further comprises a first resistor and a second resistor arranged to realize a voltage divider to regulate the threshold value at which the transistor turns on (col. 6, lines 7-28).

Regarding claim 14: Ikefuji does not disclose the specified resonant frequency; however, it is merely a matter of design choice to utilize a certain frequency value.

Regarding claim 22: See claim 9 above.

Regarding claim 24: See claim 14 above.

Regarding claim 33: See claim 9 above.

Regarding claim 34: Ikefuji discloses a capacitive element (C1-Cn); wherein the switching circuitry selectively electrically couples the capacitive element to the main antenna to change the resonant frequency of the main antenna (Fig. 3).

Regarding claim 35: Ikefuji discloses the switching circuitry comprises a transistor that turns on when a current in the sensing circuit exceeds a threshold value (Fig. 3).

Regarding claim 36: Ikefuji discloses the switching circuitry further comprises a first resistor and a second resistor arranged to realize a voltage divider to regulate the threshold value at which the transistor turns on (col. 6, lines 7-28).

Regarding claim 37: Ikefuji discloses the main antenna and the sensing antenna are coplanar (Fig. 2, 3).

Regarding claim 38: See claim 14 above.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art of Stobbe (US 6,070,803), Ballweber et al. (US 6,889,036), Carney et al. (US 5,446,447), Lee et al. (US 6,480,110) are cited to show a variety of RFID devices that tunes or adjust its resonant frequency.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Toan N. Pham whose telephone number is (571) 272-2967. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel J. Wu can be reached on (571) 272-2964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

December 7, 2005

**TOAN N. PHAM  
PRIMARY EXAMINER**

